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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/686,388

10/14/2003

Sung-Hyuk Shin

1-2-0434.1US

6304

24374

7590

12/01/2004

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EXAMINER

WACHSMAN, HAL D

ART UNIT

PAPER NUMBER

2857

DATE MAILED: 12/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/686,388

Applicant(s)

SHIN ET AL.

Examiner

Hal D Wachsman

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. This application is in condition for allowance except for the following formal matters:

a) In the Abstract, "BPSK", "QPSK", "PSK" and "QAM" have not been defined. Appropriate correction is required.

b) The specification and claims are objected to under 37 C.F.R. 1.52 because in various locations of the specification (see for example equation (2) on page 3 of the specification) and the claims (see the equation in claim 9 for example) the lettering of the variables, superscripts and subscripts, are of insufficient height. Appropriate correction is required.

c) Claims 1-15 are objected to under 37 C.F.R. 1.75(a) for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Claim 1, line 5, cites "the demodulated symbol" however the antecedent basis is plural. Claim 1, lines 9-10, cite "the symbols" however the antecedent basis is "demodulated symbols". This same type of problem also occurs in claim 1, lines 12 and 13. Claim 3, line 2, cites "the median value" however the antecedent basis is "median based average power value". This same type of problem also occurs in claim 14, line 2. Claim 3, line 3, cites "the mean value" however the antecedent basis is "mean based average power value". This same type of problem also occurs in claim 3, line 3. Claims 5-7 cite "the data symbols" which should be "the demodulated data symbols". In claim 8, line 4, it appears that the first "mean(y..." should be "median(y...". Claim 8, line 5, cites "the symbols" which it appears should be "the demodulated data symbols". In the equations of claims 8-10 are a variety of

variables such as E, n, N, etc. that have not been defined. Claim 12, line 3, cites "the data bits" however the antecedent basis is "sequence of data bits". This same type of problem also occurs in various other locations of the claim. Claim 14, line 3, cites "the quadrants" which lacks antecedent basis. The examiner asks the applicant to better claim the limitations cited above. While the examiner understands the intentions of the applicant he feels confusion could be drawn from the limitations cited above.

Appropriate correction is required.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

2. The following references are cited as being art of general interest: Popovic (6,292,519) which disclose correction of signal-to-interference ratio measurements, Seki et al. (6,032,026) which disclose a signal to interference power ratio measuring apparatus and Oishi et al. (6,028,894) which disclose symbol averaging.

3. Claims 1-11 are allowable over the prior art because the prior art does not disclose or suggest: estimating the average signal power of demodulated symbols as a function of a median based average power value and a mean based average power value of the demodulated symbols for each quadrant of a quadrature phase shift keying constellation and calculating the SIR by dividing the estimated average signal power of the symbols by an estimated average effective interference power of the symbols.

Claims 12-15 are allowable over the prior art because the prior art does not disclose or suggest: estimating the average signal power of a sequence of data bits as a function of a median based average power value and a mean based average power value of the data bits and calculating the SIR by dividing the estimated average signal power of the data bits by the estimated average effective interference power of the data bits.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hal D Wachsman whose telephone number is 571-272-2225. The examiner can normally be reached on Monday to Friday 7:00 A.M. to 4:30 P.M..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 571-272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Hal D Wachsman
Primary Examiner
Art Unit 2857

HW
November 25, 2004